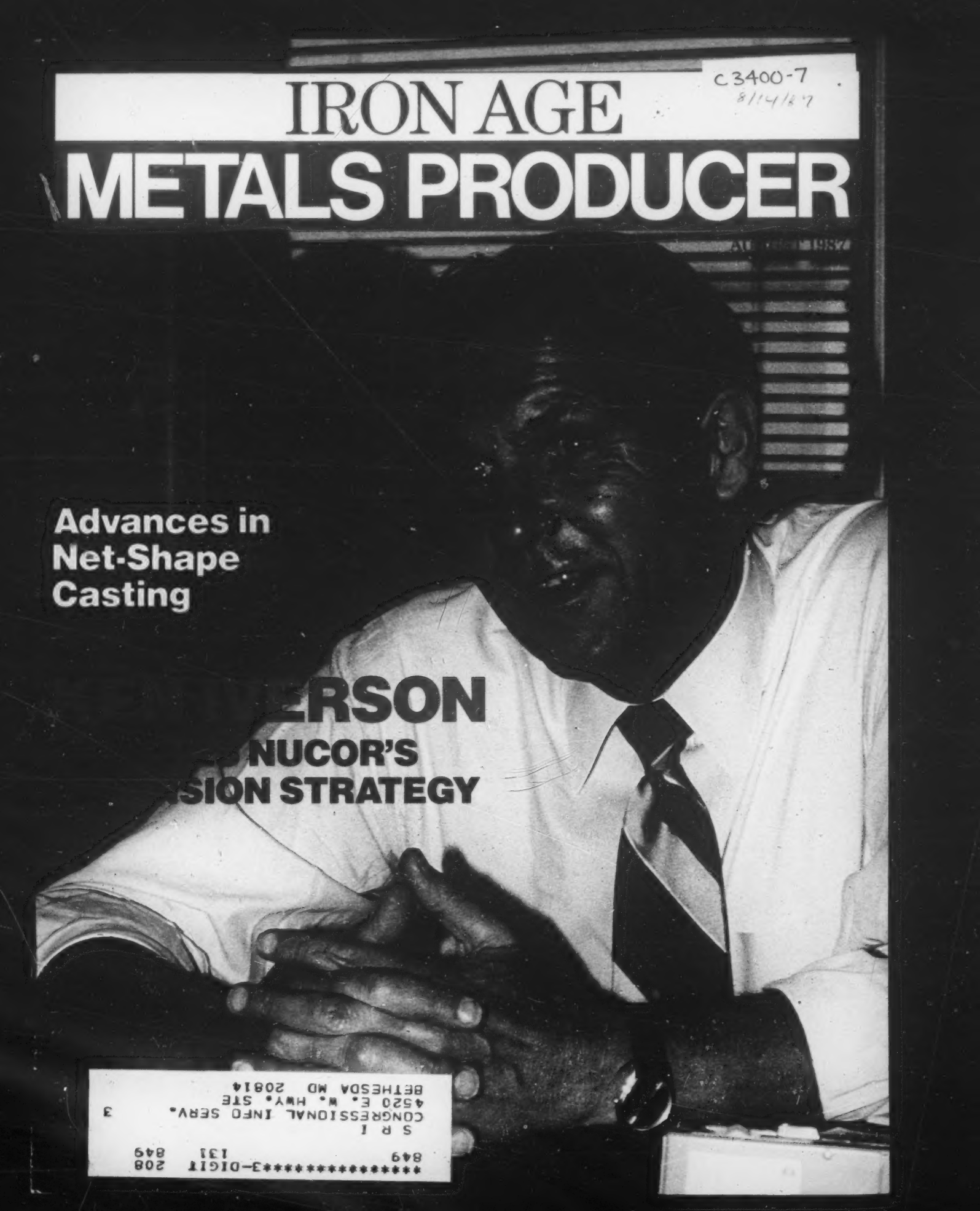
C3400-7
8/14/87

IRON AGE
METALS PRODUCER



Advances in Net-Shape Casting

ERSON
NUCOR'S
SION STRATEGY

3
S R I
CONGRESSIONAL INFO SERV.
4520 E. W. HWY. STE
BETHESDA MD 20814
208 849 131 849
**********3-DIGIT

IRON AGE
METALS PRODUCER

CONTENTS

AUGUST 1987, Vol. 3, No. 8

Strip Casting: Steelmakers are pursuing several new processes as a means to bring liquid steel to the final product form.

Special Feature-P.14

Nucor's Darlington plant is testing the Hazelett process.

STEEL BY GEORGE

P.4—Some economists are not on steel's wavelength.

EDITORIAL

P.5—More fun and games in all the high places.

NEWSWATCH

P.7—Restructuring
Revamping its steel industry could be more painful for the U.S. than it was for the European Economic Community.

STRIP CASTING

P.14—New Processes
The steel industry is looking at everything from casting a two-inch slab to direct casting of thin strip.

MINI-MILLS

P.20—Nucor
Higher profits are enabling the company to plough money into new plants and projects for expanding existing facilities.

SPECIALTY STEEL

P.22—Timken
The Faircrest plant has fulfilled the high expectations Timken had for its new $500 million mill.

McLOUTH STEEL

P.29—McLouth Steel
The troubled steelmaker may have some loyal customers, but debts of more than $100 million are weighing it down.

MATERIALS REPORT

P.35—Steel Summary
Steel producers are pleased but puzzled by the continued strength of demand.

DEPARTMENTS

P.2—Editorial Staff
P.12—Industrial Briefs
P.36—P&P Data
P.37—Ferrous Scrap
P.38—Clearing House
P.40—Ad Index
P.40—Business Staff
P.41—Reader Service Card

NEXT ISSUE:

New Advances in Steel Technology

Iron Age Metals Producer (UPS 269-780) is published monthly by Fairchild Publications, 7 E. 12th St., New York, N.Y. 10003. Fairchild Publications is a division of Capital Cities Media Inc., New York, N.Y. Second-class postage paid at New York, N.Y., and additional mailing offices. Iron Age Metals Producer is sent on a controlled free basis to qualified managers in the primary metals industry. All others: $30 one year (U.S.), $56 one year (Canada/foreign). Single copies, $3.00. Send address changes to Iron Age Metals Producer, P.O. Box 3026, Wheaton, Ill. 60189.

MATERIALS PRICES

PRICE & PRODUCTION DATA

(Effective July 6, 1987)

Steel production by districts, thousands of tons (000 omitted)

	Last Week	Two Weeks Ago	Month Ago	Year Ago
Northeast Coast	243	228	223	143
Pittsburgh	153	178	191	169
Youngstown	91	106	107	66
Lake Erie	144	133	130	100
Detroit	153	147	148	125
Chicago	489	472	476	397
Midwest	186	198	189	165
Southern	185	186	185	174
Western	51	52	53	80
U.S. Production	1,695	1,700	1,702	1,419

Source: American Iron & Steel Institute

Lake Superior Ore Prices

51.50% Fe Natural delivered lower Lake ports unless otherwise stated. Rail transportation, handling and unloading may be charged to buyer. Coarse ore 80¢ premium.

Pellets (per iron unit natural)..... gross-ton 58.0*
Pellets (per iron unit natural)..... gross-ton 59.4**
Pellets (per iron unit natural)..... gross-ton 72.45-86.9***
Mesabi, regular-unscreened ..... gross-ton 32.53
Mesabi, non-bessemer ..... gross-ton 30.03-31.53

*58.0¢—Mineral Services, Inc. as of 8/13/85. **59.4¢—Inland Steel Mining, 1/1/85 and Pickands Mather, 8/1/85, delivered hold of vessel, upper Lake ports. ***72.45¢—Cleveland-Cliffs as of 12/30/86. 72.5¢—U.S. Steel as of 8/16/85. 86.9¢—Ogleby Norton 3/25/82. Hanna Mining 2/26/82.

STEEL PRODUCTION, COMPOSITE PRICES

(Effective July 6, 1987)

U.S. Steel Production	Last Week	Two Weeks Ago	To Date 1986	To Date 1985
Net tons, in thousands	1,695	1,700	42,875	45,603
Capability Utilization Rate	79.2	79.0	75.4	69.5

Composite Prices	This Week	Week Ago	Month Ago	Year Ago
Finished Steel Base* (¢/lb.—eff. 1/4/87)	25.236	25.236	25.236	24.850
Pig Iron** (Net ton= 2000 lbs.)	$213.00	$213.00	$213.00	$213.00
Scrap No. 1 hvy.*** (Gross ton=2240 lbs.)	$ 79.50	$ 77.83	$ 77.17	$ 71.50
No. 2 bundles	$ 54.17	$ 52.83	$ 52.83	$ 52.50

Scrap Comparison (Gross Ton)				
No. 1 steel, Pittsburgh	$ 85.50	$ 82.50	$ 82.50	$ 71.50
No. 1 steel, Philadelphia	73.50	73.50	71.50	71.50
No. 1 steel, Chicago	79.50	77.50	77.50	71.50
No. 1 bundles, Detroit	100.50	90.50	90.50	66.50
Low Phos., Youngstown	89.50	87.50	87.50	71.50
No. 1 mach'y cast., Pgh.	84.50	81.50	81.50	74.50
No. 1 mach'y cast., Phila.	93.50	93.50	93.50	93.50
No. 1 mach'y cast., Chi.	103.50	101.50	101.50	105.50

*Finished Steel Composite: Weighted index of steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.
**Pig Iron Composite: Based on average prices for basic and foundry pig iron at representative producing points within the U.S.
***Steel Scrap Composite: Average of No. 1 hvy. melting steel scrap and No. 2 bundles delivered to consumers at Pittsburgh, Philadelphia and Chicago.

NONFERROUS PRICES

(Effective July 6, 1987) Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated.

Primary Metal Prices

(cents per lb.)	current price	last price	date of change
Aluminum (LME)	66.50	63.50	7/6/87
Copper (C)	80.00	75.50	7/6/87
Lead	42.00	38.00	7/6/87
Magnesium Ingot	153.00	148.00	12/9/85
Nickel (LME)	205.00	205.50	7/6/87
Zinc	48.00	45.00	6/10/87

ALUMINUM: Avg. for last week & previous week. COPPER (C)=Cathode. LEAD: common grade. MAGNESIUM: 99.8% pig, delivered. NICKEL: Avg. for last week & previous week. ZINC: high grade.

Antimony, American Laredo, Texas..... $2.00
Beryllium-aluminum 5% Be, per lb. contained Be $248.00
Beryllium-copper, per lb. cont. Be..... $152.00
Beryllium 97% powder 200..... $196.00
Cadmium, ton lots..... $1.50
Calcium, ton lots, crown $3.92
Chromium, 99.5% electro $4.62
Cobalt, 99%, cathode..... $12.50
Gold, per troy oz. $446.25
Indium, per troy oz..... $6.60
Iridium, per troy oz..... $385.00
Magnesium sticks, 10,000 lbs $2.12
Mercury, per 76-lb., f.o.b. N.Y..... $285.00-305.00
Molybdenum, lb. tech. moly oxides, 20 lb. MO can $3.45
Palladium, per troy oz..... $141.00
Platinum, per troy oz..... $553.00
Rhodium, per troy oz. $1,230.00
Silver ingots, per troy oz $7.37
Titanium sponge, melt grade $3.40-3.55
Tungsten powder, hyd red. $9.53-9.85
Vanadium $6.00
Zirconium sponge $11.20-17.00
(Per lb. unless otherwise noted)

Straits Tin Price

(U.S. cents per lb. EX-SMELTER, based on daily market in Kuala Lumpur in Malaysian dollars per kilo.)

June 29—291.00 July 2—292.00
June 30—291.00 July 3—290.00
July 1—291.00

Scrap Prices

Brass Mill Scrap

(Cents per lb., over 20,000 lbs. add 1¢ per lb.)

	Solids	Turnings
Copper	57	52
Yellow brass	50½	49½
Red brass	51½	47½
Comm. bronze	53	48
Mang. bronze	40	39
Free cutting rod ends	49½	48½

Custom Smelters Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire 56
No. 2 copper wire 47
Light copper..... 41

Ingot Makers Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire 51
No. 2 copper wire 43
Light copper..... 36
No. 1 composition..... 44
No. 1 comp. turnings..... 44
Hvy. yellow brass solids 32
Hvy. yellow brass turnings..... 26
Radiators 30

Aluminum

New mixed clips.....	44	— 45
Old sheet.....	38	— 39
Old cast	38	— 39
Clean dry borings.....	39	— 40

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Aluminum

Segregated clippings.....	39	— 40
Mixed I.C. clips.....	38	— 39
Old sheets and cast.....	32	— 33
Borings and turnings.....	27	— 28
Duraluminum clippings	32	— 33

Copper and Brass

No. 1 copper wire.....	47	— 50
No. 2 copper wire.....	38	— 39
Light copper.....	35	— 36
Radiators.....	25	— 26
No. 1 composition	39	— 40
No. 1 composition turnings.....	37	— 38
Cocks and faucets	33	— 34
Clean heavy yellow brass	29	— 31
Brass pipe	32	— 34
New soft brass clippings.....	43	— 44

Lead

Heavy soft lead	14	— 15
Whole batteries.....	1	— 2
Type metal	23	— 24
Electrotype.....	16	— 17

Nickel

Nickel solids.....	132	—142
Nickel rod ends	140	—150
Nickel sheets, clips	140	—150
Nickel turnings.....	28	— 38

Zinc

New zinc clippings.....	16	— 17
Old diecast zinc	12	— 13

MATERIALS PRICES

EFFECTIVE JULY 6, 1987

(Effective July 6, 1987) Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated. Prices are the opinions of Iron Age editors and correspondents, based on contacts with dealers, brokers, generators and users in the industry, on the effective date listed above.

Ferrous Scrap Prices

Pittsburgh

No. 1 hvy. melting	$ 85.00 to	$ 86.00
No. 2 hvy. melting	75.00 to	76.00
No. 1 dealer bundles	115.00 to	116.00
No. 1 factory bundles (auto)	119.00 to	120.00
No. 2 bundles	50.00 to	51.00
No. 1 busheling	111.00 to	112.00
Machine shop turnings	10.00 to	11.00
Shoveling turnings	46.00 to	47.00
Cast iron borings	43.00 to	44.00
Low phos. punchings plate	114.00 to	115.00
Heavy turnings	75.00 to	76.00
No. 1 RR hvy. melting	98.00 to	99.00
Rails, 2 ft and under	112.00 to	113.00
Scrap rails, random lgth	94.00 to	95.00
RR specialties	113.00 to	114.00
No. 1 machinery cast	84.00 to	85.00
Cupola cast	76.00 to	77.00
Heavy breakable cast	30.00 to	31.00
Stainless		
18-8 bundles and solids	550.00 to	560.00
18-8 turnings	450.00 to	460.00

Chicago

No. 1 hvy. melting	$ 79.00 to	$ 80.00
No. 2 hvy. melting	75.00 to	76.00
No. 1 dealer bundles	116.00 to	117.00
No. 1 factory bundles (auto)	116.00 to	117.00
No. 2 dealer bundles	68.00 to	69.00
No. 1 busheling	109.00 to	110.00
Shredder scrap	94.00 to	95.00
Machine shop turnings	23.00 to	24.00
Mixed borings and turnings	16.00 to	17.00
Shoveling turnings	26.00 to	27.00
Cast iron borings	41.00 to	42.00
Low phos. large crop	108.00 to	109.00
Low phos. punchings plate 1/4 in. and heavier	123.00 to	124.00
Low phos. 2 ft. and under	117.00 to	118.00
No. 1 RR hvy. melting	94.00 to	95.00
Scrap rails random lgth	84.00 to	85.00
Reroller rails	101.00 to	102.00
Rails, 2 ft. and under	117.00 to	118.00
RR couplers and knuckles	91.00 to	92.00
RR car axles	122.00 to	123.00
No. 1 machinery cast	103.00 to	104.00
Cupola cast	92.00 to	93.00
Stove plate	102.00 to	103.00
Steel car wheels	109.00 to	110.00
Stainless		
18-8 bundles and solids	510.00 to	520.00
18-8 turnings	380.00 to	390.00
430 bundles and solids	140.00 to	150.00
430 turnings	85.00 to	95.00

Philadelphia

No. 1 hvy. melting	$ 72.00 to	$ 76.00
No. 2 hvy. melting	64.00 to	67.00
No. 1 dealer bundles	100.00 to	103.00
No. 2 dealer bundles	42.00 to	45.00
No. 1 busheling	95.00 to	98.00
Shredder scrap	87.00 to	90.00
Machine shop turnings	22.00 to	25.00
Mixed borings and turnings	22.00 to	25.00
Shoveling turnings	35.00 to	38.00
Low phos. 5 ft and under	80.00 to	83.00
Low phos. 2 ft punchings	97.00 to	100.00
Electric furnace bundles	107.00 to	110.00
RR specialties	78.00 to	81.00
Rails, 2 ft. and under	96.00 to	99.00
Cupola cast	80.00 to	83.00
Heavy breakable cast	52.00 to	55.00
No. 1 machinery cast	92.00 to	95.00

Detroit

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 53.00 to	$ 54.00
No. 2 hvy. melting	51.00 to	52.00
No. 1 dealer bundles	100.00 to	101.00
No. 2 bundles	38.00 to	39.00
No. 1 busheling	98.00 to	99.00
Drop forge flashings	58.00 to	59.00
Machine shop turnings	22.00 to	23.00
Mixed borings and turnings	7.00 to	8.00
Shoveling turnings	22.00 to	23.00
Cast iron borings	22.00 to	23.00
Heavy breakable cast	33.00 to	34.00
Mixed cupola cast	48.00 to	49.00
Automobile cast	72.00 to	73.00
Stainless		
18-8 bundles and solids	510.00 to	520.00
18-8 turnings	290.00 to	300.00
430 bundles and solids	115.00 to	125.00

Youngstown

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 74.00 to	$ 75.00
No. 2 hvy. melting	68.00 to	69.00
No. 1 dealer bundles	98.00 to	99.00
No. 2 dealer bundles	41.00 to	42.00
Machine shop turnings	18.00 to	19.00
Shoveling turnings	18.00 to	19.00
Low phos. plate	89.00 to	90.00
Electric furnace bundles	80.00 to	81.00
Galvanized bundles	77.00 to	78.00

Cleveland

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 69.00 to	$ 70.00
No. 2 hvy. melting	63.00 to	64.00
No. 1 dealer bundles	98.00 to	99.00
No. 1 factory bundles	101.00 to	102.00
No. 2 bundles	39.00 to	40.00
No. 1 busheling	92.00 to	93.00
Machine shop turnings	22.00 to	23.00
Shoveling turnings	22.00 to	23.00
Cast iron borings	23.00 to	24.00
Cut structural & plates, 5 ft. and under	82.00 to	83.00
Cut structural & plates, 2 ft. and under	105.00 to	106.00
Low phos. punchings plate	105.00 to	106.00
Foundry steel, 2 ft. & under	62.00 to	63.00
No. 1 RR hvy. melting	71.00 to	72.00
Rails, 2 ft. and under	103.00 to	104.00
Rails, 18 in. and under	105.00 to	106.00
No. 1 machinery cast	84.00 to	85.00
Mixed cast	51.00 to	52.00
Stainless		
18-8 bundles	515.00 to	525.00
18-8 turnings	295.00 to	305.00
430 bundles	120.00 to	130.00

Buffalo

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 60.00 to	$ 61.00
No. 2 hvy. melting	50.00 to	51.00
No. 1 busheling	85.00 to	86.00
No. 1 dealer bundles	87.00 to	88.00
No. 2 bundles	29.00 to	30.00
Machine shop turnings	13.00 to	14.00
Mixed borings and turnings	13.00 to	14.00
Shoveling turnings	19.00 to	20.00
Cast iron borings	27.00 to	28.00
Low phos. plate	83.00 to	84.00
Structural and plate, 2 ft. and under	84.00 to	85.00
Rails, 2 ft and under	89.00 to	90.00
Scrap rails, random lgth	67.00 to	68.00
No. 1 machinery cast	77.00 to	78.00
No. 1 cupola cast	71.00 to	72.00

St. Louis

No. 1 hvy. melting	$ 76.00 to	$ 77.00
No. 2 hvy. melting	66.00 to	67.00
No. 1 busheling	93.00 to	94.00
No. 1 dealer bundles	100.00 to	101.00
No. 2 bundles	64.00 to	65.00
Machine shop turnings	17.00 to	18.00
Shoveling turnings	21.00 to	22.00
Cast iron borings	26.00 to	27.00
No. 1 RR hvy. melting	88.00 to	89.00
Rails, random length	83.00 to	84.00
Rails, 5 ft and under	98.00 to	99.00
RR specialties	88.00 to	89.00
Cupola cast	69.00 to	70.00
Heavy breakable cast	43.00 to	44.00
Stove plate	90.00 to	91.00
Steel car wheels	92.00 to	93.00
Rerolling rails	105.00 to	106.00
Unstripped motor blocks	60.00 to	61.00

Birmingham

No. 1 hvy. melting	$ 75.00 to	$ 76.00
No. 2 hvy. melting	68.00 to	70.00
No. 1 dealer bundles	76.00 to	77.00
No. 2 bundles	48.00 to	49.00
No. 1 busheling	76.00 to	77.00
Shredder scrap	90.00 to	91.00
Machine shop turnings	28.00 to	29.00
Shoveling turnings	37.00 to	38.00
Cast iron borings	34.00 to	35.00
Electric furnace bundles	70.00 to	71.00
Elec. furnace, 3 ft. & under	76.00 to	77.00
Structural and plate, 2 ft	96.00 to	97.00
Structural and plate, 4 ft	86.00 to	87.00
No. 1 RR hvy. melting	86.00 to	87.00
Scrap rails, random lgth	81.00 to	82.00
Rails, 2 ft. and under	99.00 to	100.00
Angles and splice bars	93.00 to	94.00
No. 1 cupola cast	82.00 to	83.00
Unstripped motor blocks	79.00 to	80.00

Cincinnati

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 66.00 to	$ 67.00
No. 2 hvy. melting	57.00 to	58.00
No. 1 dealer bundles	93.00 to	94.00
No. 2 bundles	35.00 to	36.00
Machine shop turnings	15.00 to	16.00
Shoveling turnings	18.00 to	19.00
Cast iron borings	27.00 to	28.00
Low phos. 18 in. and under	94.00 to	95.00
Rails, random length	81.00 to	82.00
Rails, 2 ft. and under	101.00 to	102.00
No. 1 cupola cast	73.00 to	74.00
Heavy breakable cast	29.00 to	30.00
Drop broken cast	78.00 to	79.00

New York

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 38.00 to	$ 40.00
No. 2 hvy. melting	31.00 to	32.00
No. 2 dealer bundles	20.00 to	22.00
Mixed borings and turnings	10.00 to	11.00
Machine shop turnings	4.00 to	6.00
Shoveling turnings	10.00 to	12.00
Clean cast, chem. borings	35.00 to	36.00
No. 1 machinery cast	79.00 to	80.00
Mixed yard cast	50.00 to	51.00
Heavy breakable cast	10.00 to	12.00
Stainless		
18-8 prepared solids	400.00 to	420.00
18-8 turnings	315.00 to	335.00
430 prepared solids	100.00 to	110.00
430 solids	85.00 to	95.00

Boston

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 53.00 to	$ 55.00
No. 2 hvy. melting	43.00 to	45.00
No. 1 dealer bundles	66.00 to	68.00
No. 2 bundles	34.00 to	36.00
No. 1 busheling	65.00 to	67.00
Shredder scrap	64.00 to	66.00
Machine shop turnings	12.00 to	14.00
Shoveling turnings	18.00 to	20.00
No. 1 machinery cast	75.00 to	80.00
Mixed cupola cast	44.00 to	46.00
Heavy breakable cast	8.00 to	10.00

San Francisco

No. 1 hvy. melting	$ 40.00 to	$ 42.00
No. 2 hvy. melting	34.00 to	36.00
No. 1 dealer bundles	31.00 to	33.00
No. 2 dealer bundles	20.00 to	21.00
Machine shop turnings	8.00 to	9.00
Cast iron borings	8.00 to	9.00
No. 1 cupola cast	80.00 to	82.00

Los Angeles

No. 1 hvy. melting	$ 38.00 to	$ 40.00
No. 2 hvy. melting	32.00 to	34.00
No. 1 dealer bundles	30.00 to	32.00
No. 2 dealer bundles	16.00 to	18.00
Machine shop turnings	7.00 to	8.00
Shoveling turnings	8.00 to	9.00
Cast iron borings	8.00 to	9.00
Elec. furnace, 1 ft. and under (foundry)	67.00 to	69.00
No. 1 cupola cast	72.00 to	74.00

Seattle

No. 1 hvy. melting	$ 62.00 to	$ 64.00
No. 2 hvy. melting	53.00 to	55.00
No. 2 bundles	37.00 to	39.00
No. 1 cupola cast	89.00 to	90.00
Mixed yard cast	80.00 to	82.00

Hamilton, Ont.

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 81.00
No. 2 hvy. melting, cut 2 ft and under	71.00
No. 1 dealer bundles	96.00
No. 2 bundles	58.00
Mixed steel scrap	56.00
Bush. new fact. prep'd.	91.00
Bush. new fact. unprep'd	74.00
Machine shop turnings	30.00
Short steel turnings	32.00
Mixed borings and turnings	19.00
Cast scrap	90.00

Houston

Brokers buying prices per gross ton on cars

No. 1 hvy. melting	$ 69.00 to	$ 70.00
No. 2 hvy. melting	59.00 to	60.00
No. 2 bundles	37.00 to	38.00
Machine shop turnings	18.00 to	19.00
Crushed turnings	28.00 to	29.00
Shredder scrap	79.00 to	80.00
Cut structural plate, 2 ft and under	88.00 to	89.00
Cut structural plate, 5 ft and under	76.00 to	77.00
Unstripped motor blocks	52.00 to	53.00
Cupola cast	86.00 to	87.00